

Work Order ID 137626

Wednesday, October 07, 2015 12:41:27 PM

137626

Page 1

Item ID: D2873-043
 Revision ID:
 Item Name: Nut Plate Assembly
 Start Date: 10/07/15 Start Qty: 20.00
 Required Date: 10/07/15 Req'd Qty: 20.00
 Reference:

Accept ***N900040100*** Setup Start ***NS1***
 Stop ***NS2***

Cust Item ID:
 Customer:

40.04

20
20

Approvals: Process Plan: MLS Date: 10/07/15 Tooling: _____ Date: _____
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
 Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2873	Rev A								

100
100
 Bandsaw
 Jeaspa Bandsaw

BAND SAW
 Memo
 Cut blanks: 1.000" x 0.375" x 3.700" long

0.00
 0.00

40 0 SL15-10-15

110
110
 HAAS 1
 HAAS CNC vertical machine #1

HAAS CNC VERTICAL MACHINING #1
 Memo
 Machine as per Folio FA and Dwg D2873 Identify as D2873-3
 Dwg Rev A Folio Rev AA

0.00
 0.05

40 0 SL15-10-20

120
120
 QC
 Quality Control

QC2- Inspect parts off machine FAI/FAIB
 Memo

0.00
 0.00

40 0 SL15-10-20

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐	☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐
Design ☐	☐	Operator ☐	☐	Bending ☐	☐	Set-up ☐	☐
Doc/Data ☐	☐	Offset/Setup ☐	☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐
Equip/Tooling ☐	☐	Supplier ☐	☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐
Handling/Pre ☐	☐	Training ☐	☐	Crimp/Kink/Ripple/Wave ☐	☐	Inspection Incomplete/Unqualified ☐	☐
Material ☐	☐	Use for Testing ☐	☐	Cuffs ☐	☐	Contamination ☐	☐
Internal Transport ☐	☐	Poor Information ☐	☐	Crushing ☐	☐	Countersink ☐	☐
Tribal Knowledge ☐	☐	Rushing ☐	☐	Heat Treat ☐	☐	Cut Too Short ☐	☐
LOA ☐	☐	Product Improvement ☐	☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐
Substation ☐	☐	Process Improvement ☐	☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐
Past Expiry Date ☐	☐	Manufacturing Process ☐	☐	OTHER : ☐			
Misidentified ☐	☐	Past Due ☐	☐				

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DAS
36
9-88

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval				
Description Work Order Deviation				Disposition							
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter		☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes		☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center		☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence	
				OTHER :							

Work Order ID 137626

137626

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Item ID: D2873-043 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Nut Plate Assembly
Start Date: 10/07/15 Start Qty: 20.00 ***20*** Cust Item ID:
Required Date: 10/07/15 Req'd Qty: 20.00 ***20*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC5- Inspect part completeness to step on W/O	0.00							DAS 38 9-89
190									
QC	Memo	0.01							
Quality Control									OCT 28 2015
200	Identify as per dwg & Stock Location: <i>hg 050</i>	0.00							
200									
Packaging	Memo	0.00							
Packaging	LOCATION : LG052								40X DAS 28 OCT 28 2015
210	QC21- Final Inspection - Work Order Release	0.00							
210									
QC	Memo	0.03							
Quality Control									15/10/28

SH 20151028

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

Picklist Print

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Work Order ID: 137626

137626

Parent Item: D2873-043

D2873-043

Parent Item Name: Nut Plate Assembly

Start Date: 10/07/15

Required Date: 10/07/15

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP A05.09.13New issueKJ/JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B0.375X01.00 0		Purchased	No			180	f	24.0000	0.3083	6.490526			

M6061T6B0 375X01 000

6061T6 BAR .375 x 1.00

SL 15-10-15

Location

Loc Qty

Loc Code

MAT

24

m133175 x 30

12

m133265 x 2

12

MS20426AD4-6

Purchased

No

180

Each

2,883.000

6

120

MS20426AD4-6

Rivet

15/10/27

DAS
36
9-89

Location

Loc Qty

Loc Code

Cck04

1958

M133234

1958

GA

200

M128812

16

M132536

184

ST312

725

124392

252

M128812

69

M132536

404

120 240

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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Description Work Order Deviation				Disposition				Completed By	
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								QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mis-labeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
OTHER :									

Picklist Print

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Work Order ID: 137626

137626

Parent Item: D2873-043

D2873-043

Parent Item Name: Nut Plate Assembly

Start Date: 10/07/15

Required Date: 10/07/15

Start Qty: 20.00

Required Qty: 20.00

MS21075L5

Purchased

No

100

Each

379.0000

3

60

MS21075L5

Nut Plate

15/10/27

DAS
36
9-89

Location

Loc Qty

Loc Code

CCK007

320

m133077

140

m133234

130

m133284

50

GA

51

m133019

51

ST300

8

123346

8

112
8
~~112~~

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

DART AEROSPACE LTD		Work Order:	137626
Description: Radius Block		Part Number:	D2873-3
Inspection Dwg: D2873	Rev: A	Page 1 of 1	

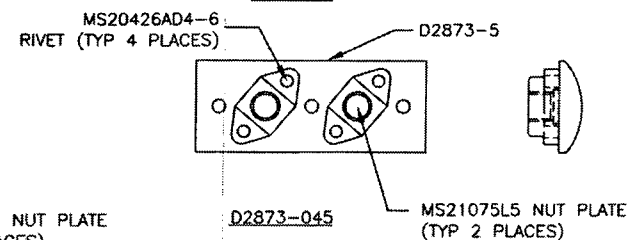
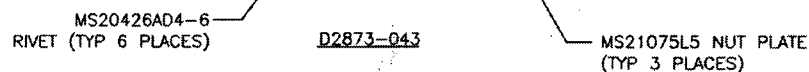
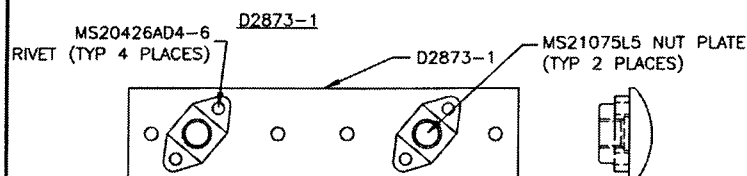
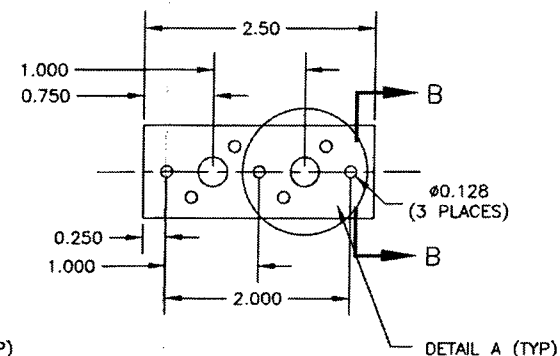
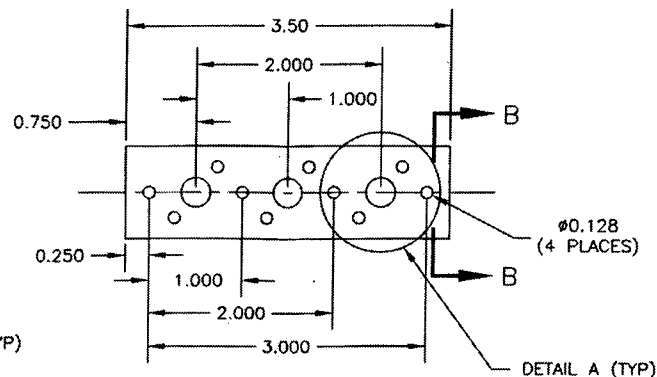
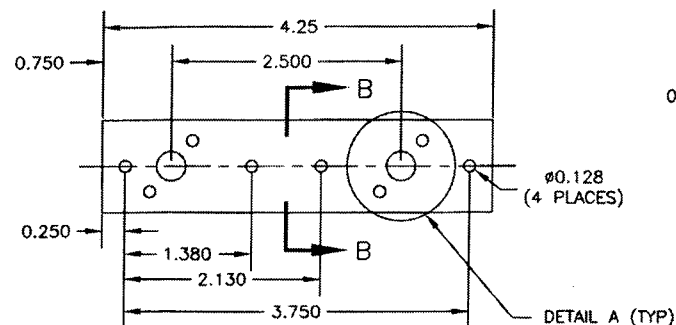
FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
3.50	+/-0.030	3.500	✓		vern	SL-10
2.000	+/-0.010	2.000	✓			
0.750	+/-0.010	0.750	✓			
1.000	+/-0.010	1.000	✓			
0.250	+/-0.010	0.250	✓			
1.000	+/-0.010	1.000	✓			
2.000	+/-0.010	2.000	✓			
3.000	+/-0.010	3.000	✓			
Ø0.128	+0.005/-0.001	0.128	✓			
0.359	+/-0.010	0.359	✓			
Ø0.316	+0.006/-0.001	0.316	✓			
1.000	+/-0.010	1.000	✓			
0.250	+/-0.010	0.250	✓			
0.061	+/-0.010	0.063	✓			
Ø0.230 x 0.125	+0.005/-0.001 x 0.010	0.230 x 0.125	✓			

Measured by:	SL	Audited by:	MAK	Prototype Approval:	N/A
Date:	15-10-19	Date:	15/10/20	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.08.30	New Issue	P/O D2873-043	KJ/JLM



D2873-1/-3/-5 RADIUS BLOCK

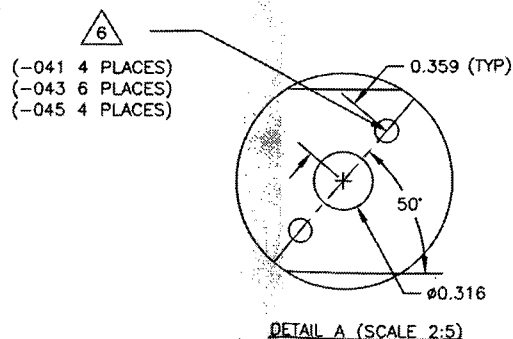
- 1) MATERIAL: 5052-H32/H34 BAR (QQ-A-225/7) (REF. DART SPEC M5052H32B1.000X0.250) OR 6061-T6 BAR (QQ-A-225/8 OR QQ-A-200/8) (REF. DART SPEC M6061T6B1.000X0.250)
- 2) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE INCHES
- 5) BREAK ALL SHARP EDGES 0.010 TO 0.020
- 6) Ø0.128 PILOT + C'BORE CURVED SIDE Ø0.230X0.125 DEEP + C'SINK CURVED SIDE Ø0.225 x 100"

D2873-041/-043/-045 NUT PLATE ASSEMBLY

- 1) INSTALL MS21075L5 NUT PLATE IN ORIENTATION SHOWN USING MS20426AD4-6 RIVETS

D2873-041/-043/-045 NUT PLATE ASSEMBLY PARTS LIST

-041	-043	-045	PART NUMBER	DESCRIPTION
X			D2873-041	NUT PLATE ASSEMBLY
	X		D2873-043	NUT PLATE ASSEMBLY
		X	D2873-045	NUT PLATE ASSEMBLY
1			D2873-1	RADIUS BLOCK
	1		D2873-3	RADIUS BLOCK
		1	D2873-5	RADIUS BLOCK
4	6	4	MS20426AD4-6	RIVET
2	3	2	MS21075L5	NUT PLATE



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 137626 SECTION B-B (SCALE 2:5)

ML5 1570-08

A	05.07.26	NEW ISSUE
DESIGN PH	DRAWN BY PH	DART DART AEROSPACE LTD WARRIMUR, ONTARIO, CANADA
CHECKED DS	APPROVED DS	DRAWING NO. D2873
DATE 05.07.26		TITLE RADIUS BLOCK
		REV. A SHEET 1 OF 1 SCALE 4:5